

Claims:

1           1. A printed circuit board for an ultrasonic array  
2     comprising:  
3           an array of contact elements located at one end of said  
4     printed circuit board for contact with corresponding  
5     elements of said ultrasonic array;  
6           a connector at an end opposite said array of contact  
7     elements;  
8           a top layer and a bottom layer each being a ground  
9     plane; and  
10          at least one internal layer between said top layer and  
11     said bottom layer and carrying thereon printed circuit lines  
12     connecting said array of contact elements with said  
13     connector.

1           2. The printed circuit board of claim 1, wherein said  
2     at least one internal layer includes two layers with half of  
3     said contact elements being connected to lines on each  
4     layer.

1           3. The printed circuit board according to claim 1,  
2     wherein said printed circuit board is flexible.

1           4. The printed circuit board according to claim 1,  
2     wherein said printed circuit board is rigid.

1           5.    The printed circuit board according to claim 1,  
2    wherein said contact elements are contact pads.

1           6.    An ultrasonic receiver apparatus, comprising:  
2           a printed circuit board;  
3           an array of ultrasonic elements mounted at one end of  
4    said printed circuit board;  
5           printed circuit lines carried by said printed circuit  
6    board, with each line being connected to one of said  
7    ultrasonic array elements;  
8           a multiplexer connected to said printed circuit lines  
9    for connecting one line at a time to a receiving device; and  
10          a switch unit for connecting each of said printed  
11    circuit lines to ground except for said line connected by  
12    said multiplexer to said receiving unit.

1           7.    The system according to claim 6, wherein said  
2    circuit board further includes a top ground plane and a  
3    bottom ground plane on opposite sides of said printed  
4    circuit lines.

1           8.    The system according to claim 6, wherein said  
2    circuit board carries a connector at an end opposite said  
3    array for connection to said printed circuit lines and  
4    wherein said multiplexer is connected through a cable to a  
5    second connector mateable with said first connector.

1           9. The system according to claim 6, wherein said  
2 multiplexer and said switch unit are connected to an address  
3 input for receiving the same address.

1           10. A method for reducing noise in a printed circuit  
2 board carrying an ultrasonic receiver array, comprising:  
3           printing circuit lines on a printed circuit board for  
4 connection with elements of said ultrasonic array;

5           placing said printed circuit lines between an upper  
6 ground plane and a lower ground plane;

7           connecting said printed circuit lines to a multiplexer  
8 for selecting one of said lines at a time for connection to  
9 a receiving unit; and

10           connecting all of said printed circuit lines except  
11 said selected line to ground in order to eliminate noise.